UNITED STATES PATENT APPLICATION

FOR

METHOD FOR DISPLAYING AN INTERACTIVE GAME HAVING A PRE-DETERMINED OUTCOME

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METHOD FOR DISPLAYING AN INTERACTIVE
GAME HAVING A PRE-DETERMINED OUTCOME

PRIORITY CLAIM

5   This application is a continuation application of U.S. Patent Application, Serial No. 09/706,293, filed on November 3, 2000, entitled "METHOD FOR DISPLAYING AN INTERACTIVE GAME HAVING A PRE-DETERMINED OUTCOME", which is incorporated herein in its entirety.

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BACKGROUND OF THE INVENTION

     The present invention relates to interactive games such as finite pool

20   games that have pre-determined outcomes, and in particular to improvements to such games that increase appeal to players.

     One class of interactive games is known as finite poker. In a finite poker game, a player is shown a first hand of cards and invited to select one or more cards to be discarded. Then the player is shown a final hand and a

25   payoff is provided if the final hand is a winning hand according to a predetermined payout schedule.

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In finite poker games known to the present inventor, the initial hand and the final hand are both predetermined prior to the time the game is started. For this reason, there can often be an inconsistency between the player's selection of cards that are to be discarded and the transition from the initial

5   hand to the final hand. This inconsistency can interfere with the desired simulation of a card game.

The present invention is directed to an improved method for displaying an interactive game that addresses this and other disadvantages of the prior art.

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SUMMARY OF THE INVENTION

The preferred card game embodiment described below displays a first hand of cards, accepts a player's designation of cards to be discarded, shows an intermediate hand that would result from the player's hold/discard

15   decisions, and then shows the final hand, predetermined by the particular game that is in progress. In order to improve the transition between the intermediate hand and the final hand, the system described below displays an entertaining display in place of those cards that are changed between the intermediate and the final hand. This entertaining display can take many

20   forms, and in one embodiment takes the form of a sequence of simulated cards. This provides an added dimension of play as the player waits for the entertaining display to terminate, after which time the player learns the final hand and the payout for the game in progress.

The system described below provides the further advantage over the

25   known prior art in that the final hand may provide an increased payout as compared to the first hand, even in those cases where the first hand is a winning hand according to a predetermined payout schedule. Thus, even when the first hand is a winning hand, the final payout may on some occasions

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be greater than the apparent payout indicated by the first hand. This provides another element of entertainment to the game.

The foregoing paragraphs have been provided by way of general introduction, and they are not intended to narrow the scope of the following
5 claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a system for displaying a simulated card game.

Figures 2a, 2b and 2c present a flowchart of a method implemented by
10 the system of Figure 1.

Figure 3 is one example of play data that have been read and stored at block 36 of Figure 2a.

Figures 4a through 4e are schematic representations of displays generated by the system of Figure 1 in response to the play data of Figure 3.
15 Figure 5 is a second example of play data that have been read and stored at block 36 of Figure 2a.

Figures 6a through 6e are schematic representations of displays generated by the system of Figure 1 in response to the play data of Figure 5.

Figures 7 and 8 are schematic representations of two alternative forms
20 that the play data can take.

DETAILED DESCRIPTION OF THE INVENTION

Turning now to the drawings, Figure 1 shows a block diagram of a system 10 for displaying an interactive game having a pre-determined outcome, in this example a simulated card game. The system 10 includes a
25 digital processor 12 that may be a conventional computer, including conventional memory devices such as random access memory, read only memory and disk storage devices. The digital processor 12 generates displays that are shown on a display 14, and the processor 12 dispenses

credits via a credit dispenser 24. The display 14 can take any suitable form, using any appropriate technology, including cathode ray tubes, liquid crystal displays, and any other display that provides suitable information to the player. The credit dispenser can take many forms depending upon the implementation, and can include a device for issuing a credit to any desired account, a receipt such as a printed receipt, one or more of tokens, coins, or other forms of money.

The digital processor 12 receives input information from the remaining elements of Figure 1. In particular, the processor 12 receives finite-pool play data from a play data source 16. A finite pool in this context is a set of predetermined game outcomes, including winning outcomes and losing outcomes. Each set of finite-pool play data corresponds to one of the predetermined outcomes of the pool. Once a particular play data set has been received from the play data source, the outcome of the associated simulated game is completely determined. The play data are described by way of example in the following detailed description.

The play data source can take any suitable form and is not intended to be limited to any particular source. For example, the play data source described in Morris U.S. Patent 5,324,035 has been found suitable, but many alternatives are possible. In a stand-alone system, the play data source 16 may correspond to stored data files on any storage medium, such as a magnetic disk, ROM, CD ROM, RAM, or other memory device.

Other elements for generating input signals for the digital processor 12 include a credit sensor 18 that responds to credits provided to the system 10 by a player. The credits can take many forms, including coins, tokens and debit transactions from any of various accounts, and the credit sensor 18 can take appropriate forms. The player-specified designation device 20 allows a player to designate Hold or Discard for each of the displayed cards, and transfers this player- specified designation to the processor 12. The device 20

can also take many forms, and can for example be implemented as any suitable switch, touch screen, array of switches, or the like. A pointing device such as a mouse or trackball can also be used.

Block 22 indicates additional player controls such as those used by the player to select an amount to be bet in a particular game, a game request switch or button, a deal request switch or button, and a cashout request switch or button. As before, the widest variety of devices can be used to implement these controls, including switch or switch arrays, touch screens, pointing devices such as a mouse or a trackball, and the like.

Various ones of the elements 18-22 are optional. For example, the credit sensor 18, the credit dispenser 24 and the betting controls and the cashout request controls may be deleted in alternative embodiments.

Figures 2a through 2c illustrate a method implemented by the system 10 of Figure 1. The following discussion will first describe the various steps of the method in general terms, and will then provide specific examples of the displays generated by the method of Figures 2a through 2c in response to two separate sets of play data.

As shown in Figure 2a, once a player session has begun the system waits in block 30 until a play credit is received, as indicated by the credit sensor 18 of Figure 1. The system optionally receives and stores the player's bet for the game at block 32, and then waits for the player's game request at block 34. Once a game request is received, the system 10 reads and stores play data for the current game at block 36. The play data are determined by the game designer before play begins, and cannot be altered by the player or the system 10. Thus, the outcome of each game is pre-determined by the play data.

The play data stored in block 36 can take many forms, depending upon the application. Figures 7 and 8 show two alternatives. In the embodiment of Figure 7, each set of play data defines five playing cards that make up Hand 1

(the initial hand), five playing cards that make up Hand 2 (the draw hand), as well as a game-specified designation for each card and a payout for the game. Hand 1 in this example corresponds to the dealt hand, and Hand 2 corresponds to the cards that will be drawn for each card position after a

5   discard.

The five cards of Hand 1 and the five cards of Hand 2 can be encoded in any desired way in the play data. For example, the cards of each hand can be defined by bitmaps included in the play data that define the desired display on a bit-by-bit basis. Alternatively, the play data can include card codes for

10   each of the cards of Hand 1 and Hand 2, or other types of codes such as a hand code that uniquely identifies the five cards of Hand 1 and other hand code that uniquely identifies the five cards of Hand 2, or a game code that identifies both hands, or keys or indexes into lookup tables. The present invention is not limited to any specific manner for indicating the desired cards

15   of Hand 1 and Hand 2 in the play data, and any approach now known or later discovered can be used.

The game-specified designation of the play data of Figure 7 includes a parameter for each of the five cards. This parameter has three states: Hold, Discard, Ignore. In the Hold state, the final hand for the corresponding card

20   position will be the corresponding card of Hand 1. When the game-specified designation is Discard, the corresponding card of the final hand will be taken from Hand 2. When the parameter is in the Ignore state, the corresponding card of the final hand will be taken from Hand 1 or Hand 2, in accordance with the player-specified designation (Hold/Discard). The game-specified

25   designations are set by the game designer, and they may not be altered by the player.

Finally, payout information of the play data indicates whether the final hand is a winning hand, and if so, the amount of the payout.

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Many other approaches can be used for the play data, and Figure 8 shows one alternative. In the example of Figure 8, the play data only includes data defining Hand 1 and the final hand. As explained above, these two hands can be encoded as a bitmap, as a card code, as a hand code, or as a game code. In this case, the play data does not include game-specified designations, and the necessary information is derived by the processor 12 of Figure 1 by comparing the cards of Hand 1 with the cards of the final hand. Similarly, the play data of Figure 8 does not include payout information, and the digital processor 12 determines the payout based on the cards of the final hand, as for example with the aid of a lookup table that defines a payout schedule.

Many other approaches are possible, and the play data are not even limited to two-state binary data. Any desired set of cards can be used to encode the information of the play data.

Returning to Figure 2a, once the play data have been stored in block 36, Hand 1 is displayed in block 38. Any desired format is used to present each of the playing cards of Hand 1 to the player. The playing cards of hand 1 can be taken from any desired deck of cards, and they are not limited to the customary four-suite deck commonly used in poker.

In block 40 the system receives and stores a player-specified designation (Hold or Discard) for each of the cards of Hand 1. Depending upon the rules of the game, the player may be limited in the number of cards that may be discarded. As an optional feature, the play data may include suggested Hold/Discard designations that can be displayed to assist the player in determining which cards to hold and which cards to discard in Hand 1.

When the player has completed the selection of Hold or Discard designations for each card of Hand 1, the player issues a deal request, which is monitored in block 42. When the deal request is received, control is transferred to block 44, where an index parameter n is set equal to 1. In the

following discussion the index parameter n will be used to designate which of the cards of a hand is being considered at a given time. By way of example, in a five card poker game, the left-most card in any hand may correspond to card (1) (n = 1) and the right-most card in any hand may correspond to card (5) (n = 5).

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Next, in the group of blocks designated at 46 the system examines card (n) to determine whether the player-specified designation for card (n) is Hold or Discard. If the player-specified designation is Hold, then the system shows card (n) from Hand 1 in an intermediate display. If the player-specified designation for card (n) is Discard, the system shows card (n) from Hand 2 in

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the intermediate display. The index parameter (n) is then incremented and control is transferred to block 50. In block 50 control is returned to node B until the last card has been updated in the intermediate display.

Thus, the intermediate display shows the hand that would result if the

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player-specified designations were followed. In this example, the intermediate hand is generated sequentially from left to right, thereby simulating successive cards that are either held or discarded. In an alternative version, all of the actions taken in block 46 can be displayed simultaneously, such that the intermediate hand replaces the first hand all at once as opposed to in a

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card-by-card fashion.

After the entire intermediate hand has been shown, the index parameter (n) is reset to 1, and the system then examines each of the cards of the intermediate hand to determine in block 52 whether the player-specified designation (Hold/Discard) matches the game-specified designation

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(Hold/Discard/Ignore) for the card in question. If the two designations match (i.e., both the player-specified designation and the game-specified designation correspond to Hold, or both correspond to Discard, or the game-specified designation corresponds to Ignore for the card in the question), then control is transferred to block 56, where the game-specified designation for the card in

question is used to select the card to be shown for the final hand. In particular, if the game-specified designation for card (n) is Hold, then card (n) of the final hand is taken from Hand 1. If the game-specified designation for card (n) is Discard, card (n) for the final hand is taken from Hand 2. If the game-specified designation for card (n) is Ignore, then card (n) for the final hand is taken from Hand 1 or Hand 2 in accordance with the player-specified designation for card (n). Note that the cards of the final hand are selected from Hand 1 and/or Hand 2. Thus, the cards of the final hand can include only cards of Hand 1, only cards of Hand 2, or any desired combination of cards from Hand 1 and Hand 2, depending upon the game being implemented.

Conversely, when the test of block 52 indicates that the player has specified Hold but the game-specified designation is Discard, or that the player has specified Discard but the game-specified designation is Hold, then control is transferred to block 54, where an entertaining display is shown in place of card (n). This entertaining display appears in the location of card (n) for a period of time after the display of card (n) of the intermediate hand in block 46 has been terminated and before display of card (n) of the final hand has been started in block 56. This entertaining display can take many forms, and may for example be a sequence of playing card images flashed in rapid succession, a morphing display in which card (n) of the intermediate display makes a progressive transition to card (n) of the final display, or an animation sequence of images. Other alternatives are possible.

Regardless of the form that the entertaining display takes, it indicates to the player that a different card will be shown in the final hand than in the intermediate hand. It thus provides an element of suspense, and it makes the transition from the intermediate hand to the final hand distinctive for those cards where there will be a transition between the intermediate hand and the final hand.

There is an inevitable tension in an interactive finite-pool game: because the game is interactive, there is the illusion that the player's decisions may improve his or her chances for success; but because the game is a finite-pool game, the game outcome is predetermined by the finite-pool play data. This tension is greatest when the cards of the intermediate hand that result from the player's Hold/Discard decisions are changed to the cards of the final hand. The entertaining display helps to preserve the illusion of game play at this time, and thereby makes the game more entertaining.

Blocks 52 through 56 are executed repeatedly for each of the cards of the intermediate hand until the last card of the final hand has been displayed, as indicated in block 60. In this event, control is transferred to block 62 (Figure 2c), at which time any credits are awarded that have been won. In block 64 the system determines if the player wishes to cash out. If not, control is returned to node E for another game. If so, the system provides a cashout credit in block 66 and stops the session for the individual player. At this point, the system is ready to start another session at node E. As before, the actions of block 56 can be displayed to the player simultaneously for all of the card positions, or sequentially for one card after another as illustrated in the flowchart of Figure 2b.

Figure 3 provides one example of the play data that is read in block 36 of Figure 2a, and Figures 4a through 4e illustrate the corresponding displays generated by the method of Figures 2a through 2c.

Figure 4a shows Hand 1 as defined by the first line of the play data of Figure 3, and as displayed in block 38. In this example, the player-specified Hold or Discard designation of block 40 is as shown in Figure 4b. Note that the player has asked that cards 1 and 3 be discarded, and that cards 2, 4 and 5 be held.

Figure 4c shows the corresponding intermediate hand displayed by block 46. Note that cards 1 and 3 in the intermediate hand of Figure 4c are

taken from Hand 2 of the play data of Figure 3, and that cards 2, 4 and 5 of the intermediate hand are taken from Hand 1, in accordance with the player-specified designations.

Figure 4d schematically shows that the entertaining display is provided only for cards 3 and 5. Figure 4e shows the final hand, which has been generated in accordance with block 60 of Figure 2b. Note that the final hand of Figure 4e is selected from Hand 1 and Hand 2. In particular, the intermediate hand of Figure 4c corresponds to the final hand of Figure 4e for cards 1, 2 and 4, and no entertaining display is provided for these cards. On the other hand, in card 3 the player requested a discard and the intermediate hand shows a 4 of clubs. The final hand as determined by the game designer (and encoded in the play data) shows a 7 of spades for card three. The transition from the 4 of clubs to the 7 of spades is facilitated by the entertaining display shown in Figure 4d. This marks the transition from the Hand 2 card as requested by the user back to the original of Hand 1 card.

The opposite situation is found for card 5, namely the player has designated card 5 as a Hold, whereas the game designer has designated it as a Discard. In this case, the transition between the 3 of clubs of the intermediate hand (the player-designated Hold) to the 9 of hearts of the final hand (the game-designated Discard) is facilitated by an intervening, entertaining display, indicated by the card E in Figure 4d.

In this example, each of the five cards of each hand is shown in the same location on the display for each hand. Thus, card 1 of Hand 1 is replaced by card 1 of the intermediate hand and then by card 1 of the final hand. In the event the entertaining display is shown, e.g., card 5, card 5 of Hand 1 is replaced with card 5 of the intermediate hand, which is replaced by the entertaining display, which is in turn replaced by card 5 of the final hand, all in the same region of the display.

Figure 5 shows a second example of play data, and Figures 6a through 6e show the corresponding displays generated by the system 10. In this case, Hand 1 (Figure 6a) includes a pair of 5's and is thus a winning hand in a payout schedule in which a single pair or better is considered to be a winning

5   hand. This payout schedule includes a respective payout for each winning hand. In this example, the player designates that cards 1, 2 and 3 are to be held, and that cards 4 and 5 are to be discarded (Figure 6b). This results in the display of the intermediate hand shown in Figure 6c. Note that cards 4 and 5 of the intermediate hand are taken from Hand 2 of the play data. As shown

10   in Figure 6d, an entertaining display is shown in the positions of cards 3 and 5, and then the final hand of Figure 6e is shown. Note that the final hand includes a full house: three 5's and two 4's. As before, this final hand is determined by the game-specified designations of the play data, which require that cards 1, 2 and 5 be held (selected from Hand 1) and that cards 3 and 4 be

15   discarded (selected from Hand 2). Note that the final hand is a better winning hand than the winning hand of Hand 1. That is, the full house of the final hand has a higher payout amount on the payout schedule than does the pair of 5's of the winning hand of Hand 1. This illustrates another feature of the simulated game of system 10, namely that a winning hand may be improved by the

20   simulated play, and the payout actually received after the final hand has been shown may be greater than the payout associated with the initial hand, even when the initial hand is a winning hand.

Note that in the position of card 3 the entertaining display is interposed between a display of a held card and a drawn card, while in the position of

25   card 5 the entertaining display is interposed between a display of a drawn card and the held card.

Of course, many changes and modifications can be made to the preferred embodiment described above. For example, in one alternative the intermediate hand discussed above is not displayed, and the flow of the game

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from the first hand, to the entertaining display when the player-specified designation is inconsistent with the game-specified designation, to the final hand. Also, depending upon the application, the game-specified designation can be limited to Hold and Discard, and may not include the Ignore state

5   discussed above.

In the foregoing examples, the entertaining display is displayed in the same position as the corresponding cards of the intermediate and the final hand. In other embodiments, the entertaining display may overlap without precisely coinciding with a portion of the corresponding cards of the

10   intermediate hand and/or the final hand. Additionally, the entertaining display may be displayed in a different position than any of the cards of the initial, intermediate, and final hands, or the entertaining display may occupy the entire display screen or the entertaining display may move around the display screen. Also, the initial hand, intermediate hand and final hand may be

15   displayed in differing portions of the display.

The game that is simulated has been described as poker in the example of the drawings. The present invention is not limited to poker simulations, and many different card games can be simulated using the techniques described above, or modifications thereof. Blackjack and High-Low are two examples.

20   Any desired payout schedule, and any desired definition of a winning hand, may be used. A payout schedule can take any form, including a lookup table or a parameter included in the play data.

As another alternative, it is not required that each hand include the same number of cards, and the final hand may include more or fewer cards

25   than the initial hand.

Reel Game Embodiments

The embodiments described above may be adapted to display other types of games, such as reel games where one or more reels of symbols appear to spin and then come to rest at respective reel-stop positions. Each

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reel-stop position displays a respective reel symbol. In one embodiment, the reels are spun initially, and they come to rest displaying a first set of reel symbols. The player then selects a subset of the reel symbols to be discarded (i.e., the respective reels to be re-spun), and the selected reels are then

5   re-spun. After the re-spin is completed, the entertaining display is shown for those reel symbols that must be changed to produce the final display of reel symbols.

All of the methods described above in conjunction with the finite poker embodiments may be used in reel-game embodiments, and any symbols may

10   be used on the reels, including all of those that are conventionally used in reel-type games. In particular, the system and method of Figures 1, 2a, 2b and 2c can be modified by substituting the following terms to adapt them to a reel-type game:

Card Game	Reel-Type Game
Card	Reel symbol
Initial deal	Initial spin
Deal	Re-spin
Hand 1	First set of reel symbols
Hand 2	Second set of reel symbols
Intermediate hand	Intermediate set of reel symbols
Final hand	Final set of reel symbols

15   In this alternative, re-spinning a reel corresponds to a discard of the corresponding original reel symbol, and not re-spinning a reel corresponds to a hold of the corresponding original reel symbol.

The display of the first and final set of reel symbols can take many forms, including those shown in Figures 4a, 4e, 6a and 6e. If desired, various

20   animation sequences may be shown to create the illusion of a spinning reel.

The various features of the systems and methods described above may be used separately from one another. Thus, the entertaining display may be used, whether or not a winning initial hand or set of reel symbols may be

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improved during simulated play, and vice versa. Also, these features may be applied to a wide variety of interactive finite-pool games with pre-determined outcomes, including card games, reel-type games, other lottery games such as simulated ticket games (e.g., scratch ticket and pull tab ticket games), and other casino-type games (e.g., roulette, money wheels, and dice games).

The term "playing symbol" is intended broadly to encompass symbols for a wide range of games, including symbols indicative of playing cards, reel symbols, interactive pull tab symbols, and other gaming devices. In general, playing symbols will be said to be "replaced" by a player when the player designates the playing symbol to be discarded, re-spun, or otherwise replaced in a given set of playing symbols.

The term "set" as used herein is intended to mean one or more, and the term "subset" is intended to mean zero or more members of a set.

The foregoing detailed description has discussed only a few of the many forms that this invention can take. For this reason, this detailed description is intended by way of illustration and not limitation. It is only the following claims, including all equivalents, that are intended to define the scope of this invention.